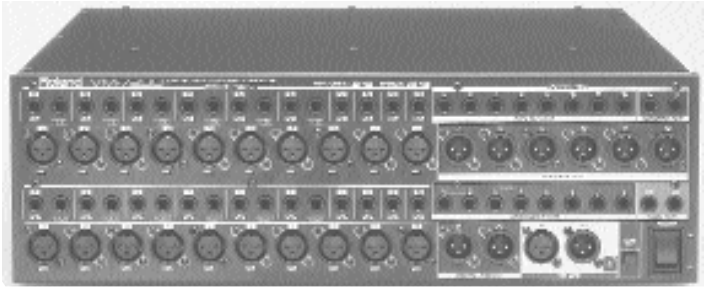
VM-7200/7100/C7200/C7100 V-Mixing Processor & V-Mixing Consoles

Redefining Digital Mixing

VM-C7200 94-ch V-Mixing Console

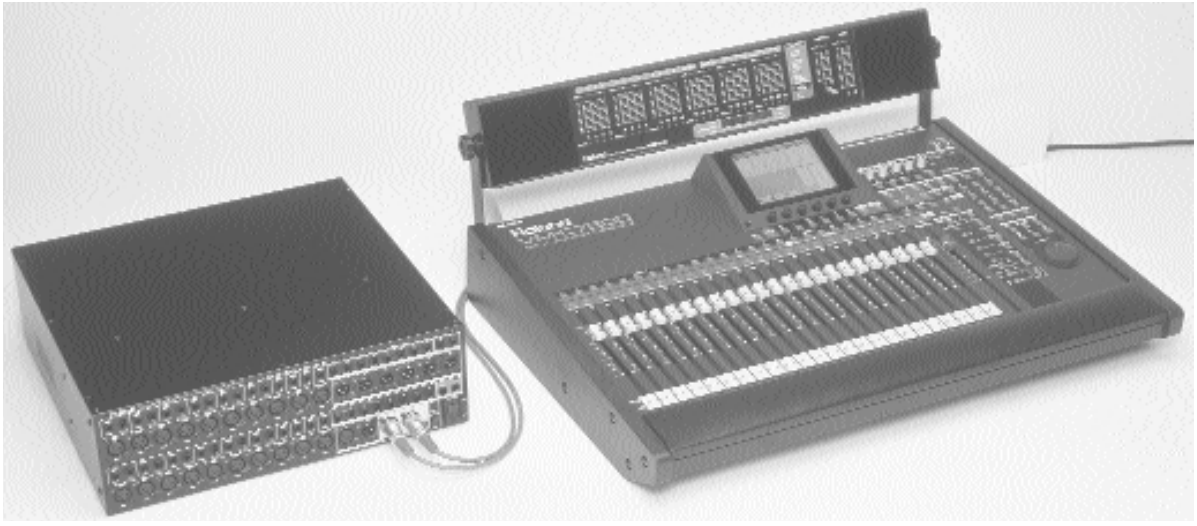
The Roland V-Mixing System represents the world's first separate-component digital mixers, capable of a mixing environment with up to 94 channels, 16 stereo (32 mono) onboard multi-effects, flexible "virtual patchbay" and FlexBus functions, and revolutionary onboard COSM Speaker Modeling capabilities. Better still, all of this breakthrough digital mixing technology can be easily navigated via a friendly user interface with a large informative LCD and ultra-fast short cut keys. And as a separate-component system, engineers are free to configure the V-Mixing System as needed for unprecedented flexibility in a range of applications.



VM-7200 48-ch V-Mixing Processor

** Products pictured are prototype models. Actual product appearance may be subject to change.*

- Up to 94 channels of digital automated mixing
- Separate console/processor design eliminates need for expensive multi-channel audio cables between stage/studio and console
- All-digital console with quiet motorized faders, transport controls and total recall of all parameters including input gain
- Liberating FlexBus and "virtual patchbay" for extreme routing flexibility
- Up to 16 stereo (or 32 mono) multi-effects processors using optional VS8F-2 Effects Expansion Boards derived from the VS-1680 effects algorithms (2 stereo effects processors standard)
- Revolutionary COSM Speaker Modeling and Mic Simulation technology
- 5.1 Surround mixing capabilities
- EZ Routing allows mixer settings to be saved as templates (e.g., "Live Jazz," "16-ch. rock recording," etc.)
- Realtime Spectrum Analyzer checks room acoustics in conjunction with noise generator and oscillator
- Up to 48 channels of ADAT®/Tascam T-DIF® digital audio I/O with optional expansion boards and interfaces
- System supports Scene memory, onboard mix automation, 24 fader groups, dual-channel delays, 4-band parametric channel EQ + channel HPF
- Mix and match configuration; any console can control either processing unit depending on space requirements, budget, and audio requirements
- Component design allows unprecedented live sound reinforcement capability where two single digital cables (up to 100 meters long) connect the on-stage processor to the front of stage console



A Powerful, Separate-Component Digital Mixing System

The first thing users will notice about the Roland VM-7000 Series is that it's a separate-component system. This in itself is a big departure from current digital mixer thinking, which holds that the console should include all audio inputs/outputs and communication jacks on the rear panel. But the VM-7000 Series is designed for professional uses beyond many of today's affordable digital mixers. Uses like live recording and sound reinforcement applications, as well as traditional digital mixer environments like post-production and professional recording studios.

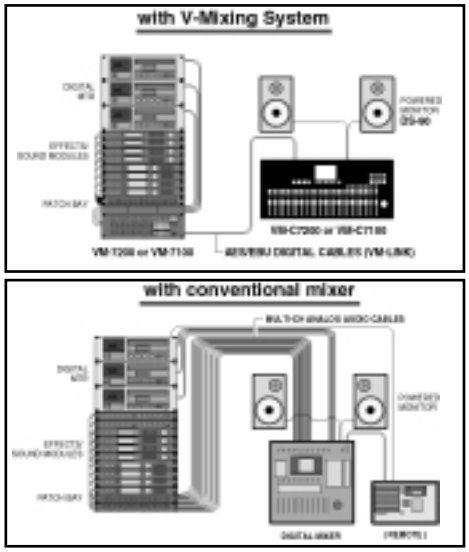
The VM-7000 Series is comprised of the VM-C7100 or VM-C7200 V-Mixing Consoles and the VM-7100 or VM-7200 V-Mixing Processors. The benefit of this separate-component design is primarily the elimination of long, heavy multi-channel analog audio cables between the stage or studio and the mixing console. Such analog cables are inherently noisier, less manageable and more expensive than digital connections, contributing to less flexibility in a digital mixer's placement and increased possibility of compromised sound quality. On the other hand, the VM-7000 Series employs VM-Link technology and standard AES/EBU digital cables so that the only thing being exchanged between the console and the rackmount processor located in the stage or studio is control data. This allows comfortable placement of the V-Mixing Console up to 200 meters (220 yards) from the processor, as well as the assurance of uncompromised, hum-free connection.

V-Mixing Processor and Console Design

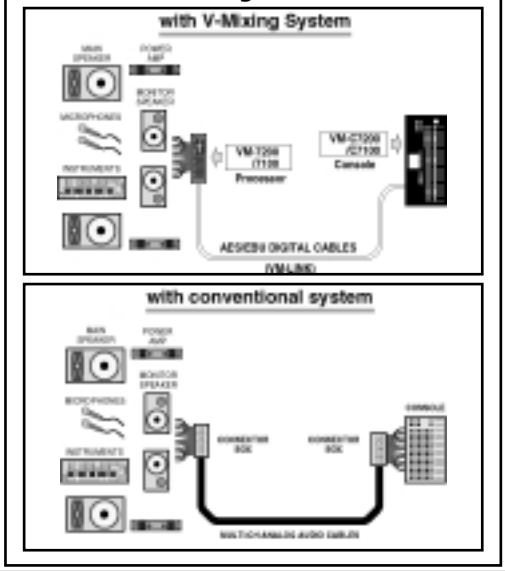
Essentially, the VM-7100 and VM-7200 processors are the "heart" of the VM-7000 Series, and the VM-C7100 and VM-C7200 are the smart, supremely user-friendly remote controllers. The rackmount processors house the digital and analog audio connections employing Roland's best 24-bit D/A and A/D converters as well as expandable onboard multi-effects and master effects, including brand new COSM Speaker Modeling technology (more on this later). In addition to strong basic mixing features which put them on par with the best compact digital mixers on the market today, the VM processors offer some unique features which really set them apart. An electronically controlled input gain allows for storing and instantly recalling basic gain settings per channel — a very helpful feature that isn't found in other digital mixers on the market today. Dual-channel delays allow for phase delay and feedback delay with Hi/Lo damping available. Extensive channel EQ consists of shelving low, peaking low-mid, peaking high-mid, shelving high, and a high-pass filter, while the low-mid can be shifted to a filter with resonance (LPF/HPF/BPF/notch). Additionally, the VM processors support Surround 5.1 mixing for post-production applications.

The VM consoles are more aptly described as controllers for the VM processors, as they primarily send and receive control data, not audio. For this reason, the VM-C7100 and C7200 should not be mistaken for the actual mixers; all "mixing" occurs within the rackmount processors. However, the VM consoles do sport a wealth of helpful "mixer" features like smooth, quiet motorized faders with two adjustable physical clickpoints per fader, a huge backlit LCD with a host of easy-to-understand graphic icons,

24-Track Digital Recording



PA System



and luminous dedicated function buttons for quick confirmation of mixer status. Above all, these consoles were designed with intuitive operation at heart, as evidenced by the variety of quick keys which simplify complex operations to a single button press. The VM-C7100 can even be rackmounted with an optional rackmount kit.

Though they don't "mix" any audio, the consoles do include two mic/line input jacks, a built-in talkback microphone, and an XLR input for plugging in an additional mic or line input. These audio signals are "sent" back to the VM processor as dual-channel digital audio via VM-Link and are provided simply for added convenience. Similarly, the console also includes two analog line out jacks and two digital out jacks which turn around two channels of audio from the processor for monitoring purposes; this is most likely where users would connect reference monitors like the new Roland DS-90 Powered Monitors.

Liberating Flexibility

Configuration Possibilities

Central to the VM-7000 Series is its flexibility. Users can freely select between the VM-7200 and VM-7100 processors and VM-C7200 and VM-C7100 mixing consoles to put together a system which most closely matches their needs. A console can control two processors simultaneously, and a processor can be controlled by one or two consoles, greatly enhancing configuration possibilities such as in a dual-console mixing/monitoring system. A basic digital mixing system for live sound recording might include the VM-C7100 console mixing front-of-house and a VM-7100 processor rack-mounted just off stage, while a more sophisticated system might employ a VM-C7200 console at front-of-house, a VM-C7100 console for monitor mixing, and include an additional VM-7100 or 7200 processor off stage for more inputs and outputs. Altogether, a maximum of 94 channels of digital mixing is available to VM-7000 Series users.

Enhanced Signal Routing

Signal routing flexibility in the VM-7000 Series is simply unrivaled in this class of mixers, thanks largely to a new "FlexBus" design. Put simply, FlexBus allows for 12 individual busses to be freely switched between Aux. and Rec. purposes, making these mixers equally suited to recording and live sound applications. In fact, this feature is like having a mixer specifically built for a user's exact application, routing audio in the way which makes the most sense.

Similar flexibility is available in the VM-7000 Series' input / output functions. Much like a "virtual patchbay," the destination channel for each input can be defined as desired (e.g., an input can be assigned to multiple channels simultaneously). And each of the eight Assignable Output jacks or 24 optional Multi-Outputs can pull from any source channel, from any bus, or even directly from an individual channel — bypassing the bus routing altogether. This flexibility results in some very liberating routing possibilities. With the aforementioned optional Multi-Outputs, Input channels can be connected directly to a multitrack recorder from any point in the signal path, enabling 24-channel direct simultaneous recording. Altogether, a maximum of 48 channels of multitrack recording plus the ability to simultaneously mix 46 additional channels is possible.

EZ Routing

Rounding out its amazing routing flexibility, the VM-7000 Series also includes an enhanced version of Roland's acclaimed EZ Routing technology. EZ Routing allows for common settings to be saved and recalled when pre-programming a signal path. Thus, users can define templates like "Live Jazz Combo," "16-Channel Rock Recording," "Hip-Hop Mixdown" and more, and have them instantly recalled with the press of a button — complete with all signal routings including external effects inserts. EZ Routing even displays the names of each instrument connected to every channel, so all a user has to do is set up the corresponding microphones.

Building Upon the Legendary V-Studio Concept

As a Roland V-Studio product, the VM-7000 Series carries on in the bold tradition of VS-Series Digital Studio Workstations. This means, first and foremost, that this system is a self-contained, "all-in-one" digital solution with amazing built-in digital effects and patchbay, that it is controllable via MIDI, and that it's supremely expandable.

Powerful VS-1680-Quality Effects

The VM-7100 and VM-7200 V-Mixing Processors offer two onboard stereo multi-effects processors and one stereo master effects processor. The multi-effects processors are the sonic equivalent of the highly acclaimed VS8F-2 Effects Expansion Board for the VS-1680 workstation, incorporating unrivaled effects such as high-end reverbs, delays, dynamics processing, COSM Guitar Amp modeling and Mic Simulations for amazing direct recording capabilities. Three optional VS8F-2 Effects Expansion Boards can be user-installed into the VM-7100/7200, yielding up to 16 stereo (or 32 mono) channels of amazing-sounding effects.

COSM-Based Speaker Modeling Technology

One of the standout VM-7000 Series effects is undoubtedly the new COSM-based Speaker Modeling. By carefully analyzing the response characteristics of a variety of high-end studio reference monitors and low-end consumer speakers, Roland engineers have graced the VM-7000 Series with the ability to convincingly "model" the sounds of these speakers when used in conjunction with the new Roland DS-90 Powered Monitors. Speaker Modeling with the DS-90's thus eliminates the hassle and expense of switching between multiple pairs of audio monitors during professional mixdowns. From esoteric and expensive to common and cheap, a variety of speaker types are now available at the touch of a button — providing multiple sonic perspectives for those who want a second, and a third, opinion.

An SST-optimizing Speaker Modeling mode is also provided for live PA application, enabling the VM-7000 Series to drive Roland SST stage speakers with ultimate response and sound quality.

Realtime Spectrum Analyzer

Essential for a great mix is a consideration of the acoustics of any given control room. Similarly, essential for great live sound is a consideration of the acoustics of a given performance hall or theater. For this reason, the VM-7000 Series includes a Realtime Spectrum Analyzer which employs a noise generator and an oscillator in the VM-7100/7200 processor. Using this function, engineers are free to adjust EQ for a room's acoustic characteristics and to eliminate annoying feedback quickly in live sound situations.

Control via MIDI

All of the VM-7000 Series parameters can be controlled and even automated via MIDI. This permits control using PC and Mac-based MIDI sequencers — a boon to those who desire the power of the VM-7000 Series but don't have the space for a console or prefer to work within the context of their desired software sequencers.

VM-7000 Series Inputs/Outputs

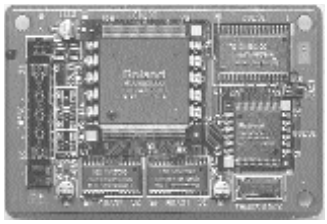
Name	Connector	Level	Remarks
[Analog Inputs on Processor]			
INPUT 1-6	XLR (balanced; w/Phantom power), TRS 1/4" (balanced)	-60 to +4 dBu	With Insert I/O (TRS 1/4").
INPUT 7-10	XLR (balanced; w/Phantom power), TRS 1/4" (balanced)	-60 to +4 dBu	
INPUT 11-16	XLR (balanced; w/Phantom power), TRS 1/4" (balanced)	-60 to +4 dBu	VM-7200 only; with Insert I/O (TRS 1/4").
INPUT 17-20	XLR (balanced; w/Phantom power), TRS 1/4" (balanced)	-60 to +4 dBu	VM-7200 only.
[Digital Inputs on Processor]			
DIGITAL IN A	Coaxial (S/P DIF)		DIGITAL IN A and B cannot be used simultaneously.
DIGITAL IN B	XLR (balanced)		DIGITAL IN A and B cannot be used simultaneously.
24-BIT MULTI IN 1-8, 9-16, 17-24	RMDB II (DB-25)		With optional VM-24E.
[Analog Inputs on Console]			
INPUT 23, 24	TRS 1/4" (balanced)	-60 to +4 dBu	INPUT 24, MIC 1 and MIC 2 cannot be used simultaneously.
MIC 1	(built-in microphone)		INPUT 24, MIC 1 and MIC 2 cannot be used simultaneously.
MIC 2	XLR (balanced; w/Phantom power)		INPUT 24, MIC 1 and MIC 2 cannot be used simultaneously.
[Analog Outputs on Processor]			
MIN OUT L, R	XLR (balanced), TRS 1/4" (balanced)	+4 dBu	
REC OUT L, R	RCA Pin (unbalanced)	+0 dBu	Same source as MAIN OUT.
MONITOR OUT L, R	TRS 1/4" (balanced)	+4 dBu	VM-7200 only; source selectable.
FEEX BUS OUT 5-12	XLR (balanced, 7-12 only), TRS 1/4" (balanced)	+4 dBu	VM-7200 only.
ASSIGNABLE OUT 1-8	TRS 1/4" (balanced)	+4 dBu	Source selectable.
[Digital Outputs on Processor]			
DIGITAL OUT A	Coaxial (S/P DIF)		Same source as ASSIGNABLE OUT 5,6.
DIGITAL OUT B	XLR (balanced)		Same source as ASSIGNABLE OUT 7,8.
24-BIT MULTI OUT 1-8, 9-16	RMDB II (DB-25)		With optional VM-24E; source selectable.
24-BIT MULTI OUT 17-24	RMDB II (DB-25)		With optional VM-24E; same source as ASSIGNABLE OUT 1-8.
[Analog Outputs on Console]			
MONITOR LINE OUT L, R	RCA Pin (unbalanced)	+0 dBu	Same source as MONITOR OUT.
PHONES 1, 2	Stereo 1/4"		Same source as MONITOR OUT.
[Digital Output on Console]			
DIGITAL OUT 1, 2	Coaxial (S/P DIF)		Same source as MONITOR OUT.

Expansion Options

Following are the expansion options currently available to VM-7000 Series users:

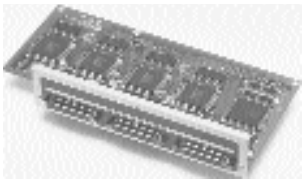
VS8F-2 Effects Expansion Board

VS8F-2 Effects Expansion Board -- Provides two stereo effects processors with the highly acclaimed effects algorithms from the VS-1680, as well as innovative new effects like COSM Speaker Modeling. Up to three additional boards can be user-installed into the VM-7100/7200 processors, for 16 stereo (or 32 mono) effects.



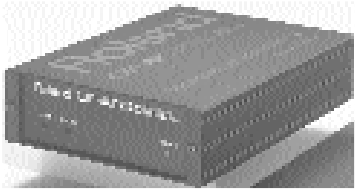
VM-24E I/O Expansion Board

Offers three R-BUS jacks on a single board. Each R-BUS jack provides 8-in/8-out 24-bit digital audio I/O, yielding 24-in/24-out audio with a single expansion board.



DIF-AT Interface Box for ADAT®/Tascam®

Converts signals between R-BUS and ADAT®/Tascam T-DIF®. Handles 8-in/8-out digital audio. 1/3 rackmount size.



VM-24C Cascade Kit

Allows connecting two VM-Series processor units in line without sacrificing an MTR bus Using two VM-7200 processors fully expanded with R-BUS I/O, 94 channels of audio processing are available.

Beyond State-of-the-Art

As a professional system, the VM-7100/7200 and VM-C7100/7200 offer all the "basics" of cutting-edge digital mixing in an elegant, easy-to-use package. Users can store Scene memories for instant recall. Onboard mix automation allows the console to memorize and replay all fader movements and mix adjustments by itself. And for increased flexibility, up to 24 sets of fader groupings are possible.

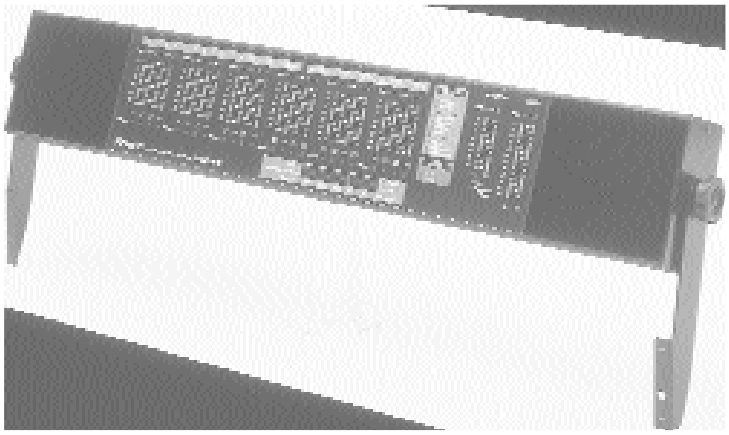
But the VM-7000 Series also offers some helpful "extras" which put it ahead of the pack. These features include transport buttons and locate/channel buttons for controlling external multitrack recorders without additional remote controls, an Output/All Mute button on the processor unit which allows for silent connection of audio cables, and SmartMedia™ card compatibility for storing mix information on low-cost, removable media. A built-in Sampling Rate Converter on the VM processors' coaxial/XLR digital inputs allows for digital audio conversion within the standard 32-48kHz range, and also allows for asynchronous digital audio. And the VM-C7100/7200 console's quiet motorized faders even offer two digitally adjustable physical "click" points per fader, letting users set resistance at appropriate levels for "normal" and "solo" sections, for example.

R-BUS — A New Digital Audio Format

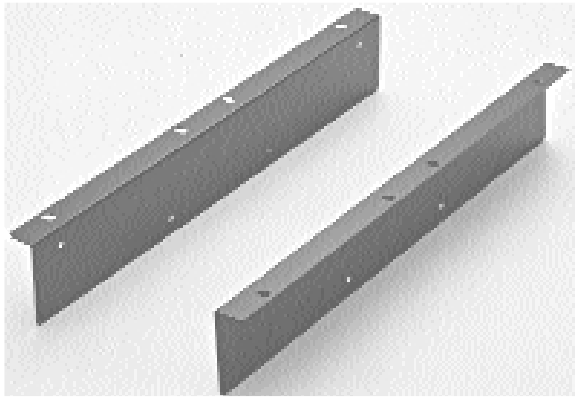
The new R-BUS digital audio format sends and receives 8-in/8-out of up to 24-bit digital audio using 25-pin D-sub terminals. It also permits sending MTR sync/control information and can handle electrical power for phantom powering of ADAT/Tascam T-DIF interface boxes, etc. This new format is now used exclusively by the Roland VM Series in their 24-in/24-out I/O Expansion Board (VM-24E) and VM-3100Pro, but can be converted to different digital audio formats like ADAT or Tascam T-DIF. R-BUS is planned for incorporation into a variety of upcoming Roland products.

** ADAT is the property of Alesis. Tascam is the property of TEAC.*

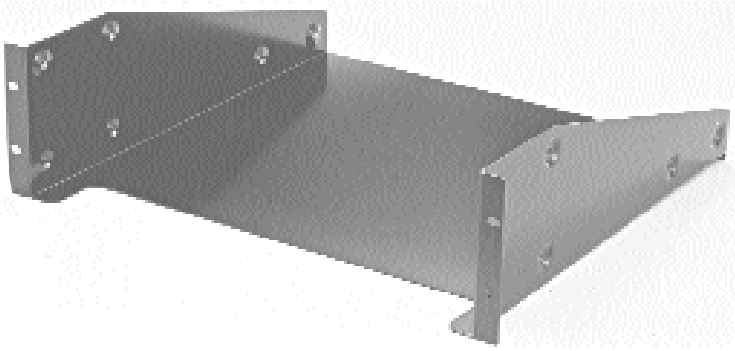
Optional Accessories for the V-Mixing System



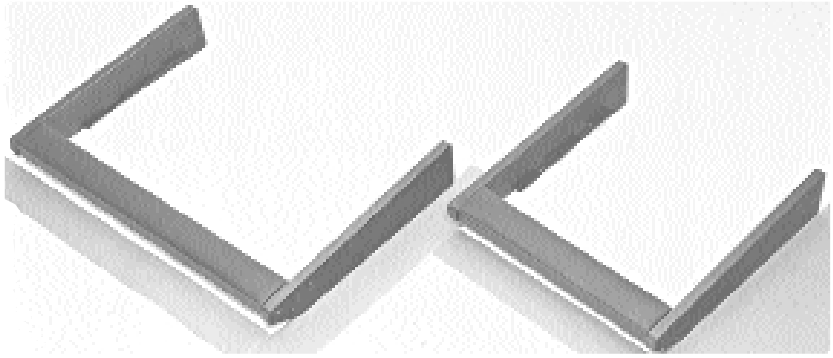
MB-24 Level Meter Bridge



RO-C7100 Rackmount Angle for VM-C7100



RO-7000 Rackmount Angle for VM-7200/7100



VM-SP72 Side Panel Kit
for VM-C7200

VM-SP71 Side Panel Kit
for VM-C7100

Specifications

<Audio>
• **Inputs (total 48):** Analog inputs: 22, Digital inputs: 2, 24-bit digital multi inputs: 24 with optional VM-24E

• **Outputs (total 50):** Analog outputs: 22, Digital outputs: 4, 24-bit digital multi outputs: 24 with optional VM-24E

• **Bus (total 16):** Main (L, R), Cue (L,R), FlexBus (1-12)

• **Talkback:** Built-in mic (on Console), Talkback ext. input (XLR balanced, w/Phantom)

• **Cascade:** (16 busses: 24-bit digital; with optional VM-24C) Main (L, R), Cue (L, R), FlexBus (1-12)

<Other I/O>
[Processor]
• **MIDI:** In, Out

• **Word Clock:** In (terminator on/off selectable), Out

• **VM-LINK:** In, Out

[Console]
• **MIDI/Meter Bridge:** In, Out/Thru/Meter

• **Footswitch:** (for Punch In/Out, Scene select, etc.): 1/2

• **Mixing Data Memory Interna:** 1MB, External: SmartMedia™ (removable, 2 to 16MB, 5 or 3.3V)

• **VM-LINK:** In, Out

<Analyzer / Generator / Oscillator>
• **Analyzer:** Realtime Spectrum Analyzer; 31/15/10 bands selectable; Peak Hold function; Microphone Character Canceling; 8 spectrum memory

• **Generator/Oscillator:** Sine wave/White noise/Pink noise

<Effects / EQ>
• **Effects:** 2 stereo or 4 mono (16 stereo or 32 mono with 3 x optional VS8F-2): Compressor, Reverb, Chorus, Delay, RSS, Mic Simulator, Speaker Modeling etc

• **EQ:** Input Ch.: 24 x 4-band (48 x 4-band with option), Main Ch.: 2 x 5-band

<Others>
• **Fader:** VM-C7200: 25 x 100mm, motorized, VM-C7100: 13 x 60mm, motorized

• **Display:** 320 x 240-dot backlit graphic LCD

• **Dimensions:** VM-7200/7100: 430 (W) x 418 (D) x 133 (H) mm (16-15/16" x 16-7/16" x 5-1/4"), VM-C7200: 675 (W) x 428 (D) x 69 (H) mm (26-9/16" x 16-7/8" x 2-11/16"), VM-C7100: 435 (W) x 428 (D) x 69 (H) mm (17-1/8" x 16-7/8" x 2-11/16")

• **Weight:** VM-7200: 8.4 kg (18 lbs. 8 oz.), VM-7100: 8.0 kg (17 lbs. 10 oz.), VM-C7200: 12.4 kg (27 lbs. 5 oz.), VM-C7100: 7.1 kg (15 lbs. 10 oz.)

• **Options:** VS8F-2 Effect Expansion Board (accepts up to 3 additional boards), VM-24E I/O Expansion (3 x R-BUS port), DIF-AT Interface Box for ADAT/Tascam (accepts up to 3 boxers), VM-24C Cascade Kit, MB-24 Level Meter Bridge, VM-SP71 Side Panel Kit for VM-C7100, VM-SP72 Side Panel Kit for VM-7200, RO-7000 Rackmount Angle for VM-7200/7100, RO-C7100 Rackmount Angle for VM-C7100

* Specifications are subject to change.
Preliminary Info as of 11 Dec. 1998